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ABSTRACT

A cross-linguistic comparison of syntax acquisition patterns examined preferential subject omission in the naturally-occurring speech of three Japanese toddlers from the Tokyo area and compared the findings to data on English acquisition. Results indicate that acquisition patterns of Japanese do not mirror those of English with regard to this phenomenon, suggesting that the English-speaking child's hypothesis concerning pro-drop parameter-setting is not universal. An alternative explanation concerning configurational, not-pro-drop, parameter-setting and branching direction is proposed. (MSE)

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DISTINGUISHING EFFECTS OF PARAMETERS IN EARLY SYNTAX ACQUISITION: A CROSS-LINGUISTIC STUDY OF JAPANESE AND ENGLISH

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I. INTRODUCTION

Current linguistic theory is critically concerned with the discovery of 'parameters'. This is in accord with the general project of Universal Grammar (UG) articulated by Chomsky (e.g. 1981,4). Parameters specify which dimensions languages in principle may differ along, and what the possible variations may be. According to the parameter-setting approach of UG, the child is biologically programmed to attend to specific types of possible language variation and sets the value of such parameters very early, with only limited experience. Widely different aspects of grammar acquisition can be deduced at once from this parameter setting. Thus, parameter-setting can significantly help to explain how successful acquisition of widely varying languages is achieved within roughly similar time-spans, e.g. English, Japanese, Hindi, etc.

We will assume that if the general theory of UG and the parameter-setting approach is correct, then the valid parameters will have empirical consequences in first language acquisition.

II. PREFERENTIAL SUBJECT OMISSION

Recently it has been argued that early stages of English syntax acquisition do reflect the effects of parameter-setting. Some of these arguments concern a phenomenon which we shall term "preferential subject omission"(PSO henceforth). This phenomenon is exemplified by sentences like "Count buttons" meaning "I", "you" or "he" counts buttons, where the subject of a tensed sentence is null, but has definite reference. The major arguments that PSO characterizes early stages of first language acquisition of English involve: 1) "predicate constructions with subjects not expressed ... predominate" at ages up to about 2;9 (Menyuk, 1969); 2) "... the first English 'sentence' consists of a predicate phrase with an optional subject" (Braine, 1976, ages 24-28 mos.); 3) While "the most productive category 'construction' was VO (verb object), the "least productive ... was SV (subject verb)" (Bloom, 1970, 131, 167, ages 19-27 mos).

III. PRO-DROP PARAMETER AND PREFERENTIAL SUBJECT OMISSION

Hyams (1983) has argued that this phenomenon of PSO in children's early English speech reflects the unmarked setting of a version of a binary 'pro-drop' parameter.

III.1 Pro-drop parameter

Languages like Spanish and Italian among others allow null subjects with pronominal interpretations in tensed clauses. These are

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often called "pro-drop languages." For example, while the Italian sentence (1) is grammatical where the null subject has a definite referent, such a sentence in English is ungrammatical as in (2). Several other grammatical variations are argued to correlate with this parameter-setting.

(1) ∅ Magia come una bestia.
(2)* ∅ Eats like a beast.

Several alternative formulations of this parameter are currently being argued on linguistic grounds (see Van Riemsdijk and Williams, 1986 for review).

III.2 Hyams' proposal

According to Hyams, [+pro-drop] is the unmarked setting of this parameter. As one consequence of this parameter-setting, that children in all languages hypothesize that subjects with definite reference can be optionally omitted in tensed clauses. Thus, Hyams proposes that children initially hold a false hypothesis in a language like English, which is [-pro-drop].

If this theory were correct, PSO in early acquisition of English is, thus, not due to a performance constraint on length or complexity but to this incorrect parameter-setting. Also if this theory is correct, then PSO will occur in early stages of acquisition of all languages. In addition, lexical expletives like pleonastic "it" and existential "there" in English will be absent during the same period. If the grammar allows a null subject, there is no need for a lexical element that does not have semantic content, assuming a universal "Avoid Pronoun Principle." Hyams proposes that the child's noticing the existence of these expletive elements in English eventually triggers English speaking children to restructure their initial grammar by resetting the 'pro-drop' parameter.

III.3 Critique of pro-drop proposal

The Hyams proposal is an interesting and significant one whose specific predictions for acquisition deserve to be experimentally tested.

Initially, the Hyams proposal raises a number of significant issues. These concern (1) the theoretical coherence and validity of the pro-drop parameter (e.g. Huang, 1986); (2) the theoretical coherence of the proposal for explaining first language acquisition. (For example, if the child acquiring English initially filters out data because of a false hypothesis, how and why does it eventually process such "expletive it" data in order to cause restructuring?); (3) empirical issues regarding the description of and explanation of acquisition facts, e.g. PSO. (4) A critical test of this proposal for the "pro-drop parameter" must involve a test of its universality cross-linguistically. It must also involve test of proposed wide deductive consequences of the parameter, and the coherence of a wide set of acquisition facts related to these consequences. We treat these issues more fully elsewhere but raise here a selection of issues and pertinent arguments relevant to (3) and (4).

Our initial results suggest that the pro-drop parameter may not uniquely explain PSO in English acquisition. In addition, initial

cross-linguistic study (Japanese-English) suggests that PSO may not be a universal phenomenon in first language acquisition. Therefore, PSO data in first language acquisition in English do not provide critical evidence for the hypothesis that [+pro-drop] is the universal parameter-setting in early first language acquisition. Finally, we suggest a possible alternative explanation for the PSO phenomenon and related acquisition facts within the parameter-setting framework.

III.3.1 Explanation of English PSO

Several aspects of English acquisition suggest PSO is not a simple result of a child's hypothesis about subject argument optionality. Arguments in support of this conclusion include the following. (1) PSO is linked to the amount of complexity in an utterance. For example the subject is more often expressed when utterance complexity is reduced by absence of explicit verbs in children's early utterances. Thus noun-noun compounds, such as "Gia eyes" (interpreted as "Gia has eyes", Bloom, 1970, P.85) are found in children's speech by Bloom (1970) and others.

(ii) Also, children express subjects more often when the verb is intransitive rather than transitive. With intransitive verbs, utterance complexity need not be increased by an additional argument, as it must with transitive verbs. This is exemplified in the contrast in (3) below.

(3)	Vt-Oj	Sj-Vi
Jonathan II (2;0)	Eat dessert.	Mommy sit.
	Bounce ball.	Andrew walk.
	Bite block.	Daddy sleep. (Braine, 1976)

(iii) Furthermore, as Bloom has argued, when the child acquiring English does add a subject to its utterance, these sentences are often in general simpler, in that they do not evidence the extra phrasal complexity which can be seen in utterances where the subject is omitted. See for example such contrasts between utterances with and without subjects in (4).

(4).1. Kathryn II (22.5mo MLU 1.92)

make more under bridge.	Lois make a car.
make car under bridge.	Kathryn make a house.

2. Kathryn I (21mo, MLU 1.32)

no pocket in there.	Baby cottage cheese. (Bloom, 1970)

(iv) Omission of arguments other than subjects also occurs at this stage. For example, Bowerman (1973) reported Kendall's (23mos) utterances such as "Daddy hide ø", and "Kimmy bite ø " where object noun appears to be omitted. Verbs are omitted, eg in N-N compounds noted above. These omissions and others cannot be explained by the pro-drop parameter as currently formulated.

(v) Finally subjects at this stage are often reduced to schwa, as in " find it", " play it" (Eric II, Bloom,1970, 111). This seems to suggest that children at this stage are aware that subjects should be expressed, although they are constrained to simplify. If the subject is hypothesized to be optional, there would appear to be no

need for a child to express it with such a reduced form.

These data taken together would suggest that PSO occurs as a partial function of a constraint on composition of complexity within the production of a single utterance at early stages of acquisition (cf. Bloom, 1970, for an initial formulation of such a constraint). Presumably this constraint is a 'performance' constraint on output, not a grammatical one[1].

Given the above argument, it would still remain possible that children acquiring English do hypothesize that subject omission is grammatically licensed by their [+pro-drop] parameter-setting. Subjects appear in fact to be more frequently reduced than other arguments or constituents. However, the argument above show that the PSO phenomenon in English itself seems to be explained at least in part by more general performance factors. Therefore, English PSO data cannot be taken alone to critically confirm the [+pro-drop] parameter- setting.

III.3.2 Test of universality of the [+pro-drop] parameter setting

To begin to test whether PSO is universal in early stages of language acquisition, we have compared Japanese first language acquisition for evidence of PSO with regard to the arguments in II above.

Japanese is an SOV, left branching language. Adult Japanese freely allows subject omission as well as other argument omission as (5) below exemplifies:

(5)	English	Japanese
	Tom saw Bill.	Tom ga Bill o mita.
		-nom -acc saw
*	ø saw Bill.	ø Bill o mita.
*	Tom saw ø.	Tom ga ø mita.
*	ø saw ø.	ø ø mita.

Japanese thus could very naturally show preferential subject omission in early acquisition.

We have initiated a study of the natural speech of three young Japanese children from the Tokyo area (MY, HH, KY in Table 1). They were aged 2;1-2;5, and appeared to be at early stages of language acquisition (before emergence of recursive complex sentence structures and with an ostensible length constraint). In addition, we analyzed one published corpus from a young Japanese child (named SN in Table 1) aged 1.6 to 1.9 (studied by Noji, 1979).

Our initial results from these analyses of Japanese acquisition are summarized in Table 1. The left half of the table shows the frequency of different word combination types and the right half of the table shows examples of each word combination type. All word combinations in the 4 samples were extracted and categorized into subject-predicate constructions and non-subject-predicate constructions as the table indicates. Our analysis is mainly based on the

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[1] Hyams argues against Bloom's linking of PSO to performance constraints (Hyams, 1983, p. 223, note 8). However, our arguments (i)-(v) are independent of Hyams' remarks on this issue.

Table 1. Frequency of Early Word Combination Type in Young Jpanese Children's Natural Speech.

word comb. type	Child age	MY (2;1)	HH (2;3)	KY (2;5)	SN (1;6-1;9)	total	Example of utterences
1) N_1(Sj) - N_2 (N_1=N_2)		3	11	8	1	23	Kore ohimesama. (MY) this princess "This is a princess"
2) N_1(Sj) - N_2 (N_1≠N_2)		1	4	20	3	28	Boku wa waagen. (KY) I -top wagon "I (will take) the wagon"
3) N(Sj) - Vi		0	0	4	20(3)[1]	24	Waagen aru (KY) wagon exits "There is a wagon"
4) N(Sj) - Vt		0	2(2)	2	0	4	Mama ga yaita no (KY) Mommy-nom baked "Mother baked (it)"
5) N(Sj) - Aj		0	2	8	3	13	Nyan ga warui no. (KY) cat bad "The cat is bad"
Subject - Predicate construction total						(92)	
6) N(Oj) - suru[2]		0	2	2	17	21	Nenne siteru (HH) sleeping is doing "(someone) is doing sleeping"
7) N(Oj) - Vt		1	6(2)	2	11(5)	20	Ouchi o kaita no (HH) house-acc drew "(I) drew a house"
8) N(Loc) - Vi		0	0	3	22	25	Attchi itta (SN) that way went "(something) went that way"
9) N(non Sj)-N		0	0	5	3	8	Buuwa takitaki. (SN) fire burn "Burn fire"
10) Ad - Vi		1	0	1	0	2	Kooshite shinjatta. (MY) like this have died "(It) has died like this"
11) Ad - Vt		0	0	2	0	2	Akaruku suru no.(KY) bright make "(I) make (something) bright"
12) Ad - Aj		0	4	1	0	5	Moo ii. (HH) already good "(It's) enough"
Non Subject - Predicate construction total						(83)	
other 2 word comb.		0	3	11	4	18	
more than 2 words		0	7(1)	7	9	23	
total word comb.		6	41	96	93	236	
total # ot utt.		85	120	156	551	912	

N=noun, N(Sj)=subject noun, N(Oj)=object noun, N(Loc)=locative noun, Vt=transitive verb, Vi=intransitive verb, Aj=adjective, Ad=adverb, Qt=quantifier

1. Japanese request forms optionally take an overt lexical subject Thus, they are included in the table. the number of request forms in each of the word combination types are in parentheses.
2. By using a noun which indicate an action, as shown in 6) above, "Np o suru" forms a complex verb in Japanese. This structure is particularly productive in children's speech.

predominant 2-word combinations[2].

Our results include the following four:

(i) Lexical subjects are productive in these early stages of Japanese. Table 1 shows that there were 92 subject-predicate constructions as opposed to 83 non-subject-predicate constructions among the 2 word combinations. For example, Noun-Noun constructions, such as, example 1, "Kore wa chimesama" ('This is a princess'), are one of the most productive constructions in these Japanese acquisition data.

(ii) Table 1 also shows that the subject-verb structure, such as example 3, "Waagen aru" (There is a wagon) is observed relatively frequently. This is in contrast to English early natural speech where Subject-verb combinations were reported to be the least frequent.

(iii) Predicative object-verb constructions, such as example 7 on the table, "Ouchi o kaita no" (Drew a house), are not the single most productive construction in the corpuses, as they were reported to be in English.

(iv) Not only are subjects omitted, but other arguments are also. This can be seen in the example (6) below:

(6) KY (2;5) Pan o mama ga tsukuru no ?
bread-acc mommy-nom make
"Is mommy gonna make bread?"
Mama ga ∅ yaita no.
mommy-nom baked
"Mommy baked (bread)"

Here, after uttering the full SOV sentence, the child retained the subject and uttered a sentence omitting the object.

In summary, then, (i)-(iv) show that these Japanese early acquisition data do not mirror the full pattern of English acquisition data with regard to PSO (cf. section II above). If PSO as in English acquisition is necessary consequence of a child's hypothesis of a [+pro-drop] parametersetting, then these Japanese results would suggest that this hypothesis is not universal.

IV. ALTERNATIVE EXPLANATION FOR PSO PHENOMENON

There have been other approaches to the explanation of the PSO in acquisition.[3] We consider one of them here.

IV.1 Principal Branching Direction parameter approach

Elsewhere, it has been recently argued that the PSO in early acquisition can be explained in terms of another parameter, one that has been termed "principal branching direction" (PBD) or "canonical

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[2] In the analysis of data, we, like all previous studies of natural speech, adopted the "rich interpretation" method (Bloom et al, 1980). That is, we interpreted children's intended utterance meaning on the basis of context and situation.

[3] For example, Guilfoyle, 1984.

branching direction" (e.g. Lust, 1986, Lust & Chien, 1984). This parameter is related to but not identical to the "Head Direction" parameter proposed by Chomsky (1982). It establishes basic configurational properties of a language.

Under this proposal, the child acquiring English has set the PBD parameter rightward, thus establishing that English generates sentence complexity productively and recursively rightward. When under a general length/complexity constraint at early stages, the child is forced to reduce its output in production. Under this performance constraint, it produces partial utterances. These utterances may include predicative structures because they are frequently rightward in the sentence and thus correlate with the general right branching (RB) setting of the PBD parameter for this language. Omission of subject is thus not a direct result of a hypothesis about empty category grammatical subject. It is an adventitious result of the interaction of a parameter involving the grammar of complex sentence formation with performance constraints. It follows indirectly from an interaction of rightward parameter-setting of a parameter which is related to configuration with general performance constraints which restrict how much complexity a child can actually express in an utterance.

Several arguments support this proposal.

(i) If the above explanation is correct, then PSO should be at least partially linked to performance factors. English first language acquisition data seem to support this hypothesis, as discussed above (III.3.1).

(ii) If PSO in early English acquisition is due to an unmarked [+pro-drop] parameter setting, then it should occur universally (Hyams, 1983). However, if PSO is significantly linked to a configurational parameter like PBD, then it should occur in RB but not in LB languages. This is because only a RB setting of this parameter determines recursive rightward productivity of sentence formation. In support of this hypothesis, we note occurrence and non-occurrence of PSO in English and Japanese (RB and LB respectively)(III.3.2).

(iii) In the acquisition of RB and LB languages, if presence or absence of PSO correlates with presence or absence of other syntactic consequences which appear to be related to the PBD parameter, then this will strongly suggest that the PSO phenomenon is, like these other acquisition facts, determined by the configurational branching direction (or related) parameter. It will also suggest that PSO is linked to more general aspects of sentence construction. We consider this hypothesis in IV.2 below.

IV.2 Related syntactic Facts in Acquisition

In English acquisition, PSO coheres with a wide set of other facts which appear to be linked to the branching direction of the English language, and which appear to be unrelated to the pro-drop parameter. For example, several researchers have noticed that, in general, first syntactic complexity in English acquisition appears in the predicate, not in the subject. In English acquisition, relative clauses appear in the predicate, before they appear in the subject (Menyuk, 1969). Coordinations also occur in the predicate before they appear in the subject (Menyuk, 1969). Early natural speech observations of these facts have been confirmed by experimental work

on children's production (e.g. Lust 1977).

These facts suggest that there is a general asymmetry in early complex sentence formation in English acquisition. This asymmetry is coherent with subject omission but not equivalent to it. According to the "pro-drop parameter," subject omission must be explained independently of these other phenomena; and the other phenomena are unexplained. In contrast, this full set of acquisition phenomena, including PSO, are consistent with the rightward setting of the PBD in English [+RB].

Finally if these phenomena regarding sentence construction do follow from the PBD parameter, and PSO is linked to this set of facts, then when PSO fails to appear in a language, so should this cluster of facts fail to appear. Our results show that in acquisition of Japanese complex sentence formation, acquisition of both relative clauses and coordination, differ critically from English.

In early acquisition of complex sentence formation in Japanese, relative clause formation is not first preferentially in the predicate, as it was in English. Subject relatives are productive (Harada, 1976, Hakuta, 1981, Snyder in preparation). In addition, both natural speech and experimental studies have confirmed that coordinate structures are not first in the predicate in early Japanese, as they were in English. Subject coordinations are productive. (Lust, Wakayama, Snyder & Bergman, 1983, Lust & Wakayama, 1979, 1981) In several cases, subject position is preferred for complexity formation by the Japanese child.

These data suggest that because Japanese is LB, the Japanese child, unlike the English child, productively develops leftward complexity even when forced to reduce overall utterance complexity by an initial performance constraint. Leftward complexity in Japanese may productively include the sentence initial subject.

Thus, the presence or absence of PSO in early first language acquisition appear to be linked to a number of other facts of early language which appear to be related to a configurational parameter, not to a pro-drop parameter.

V. CONCLUSIONS

In conclusion, we have argued as follows. (1) The preferential subject omission phenomenon found in English acquisition is linked to performance factors. It is also linked to a wide array of acquisition facts regarding early sentence formation.

(2) This whole set of acquisition facts can be linked to an alternative parameter setting for the grammar of the language being acquired.
That is, it is configurationally right in English.

(3) Not only does preferential subject omission not replicate in a LB language, i.e. Japanese, but the whole set of syntactic facts does not. (In fact, it is in part reversed). These results confirm that the preferential subject omission phenomenon in English is part of a more general configurational asymmetry which characterizes languages. We have suggested that a configurational parameter like PBD may capture this asymmetry.

(4) Our Japanese results also call into question the universality of the unmarked [+pro-drop] setting of this parameter, if PSO is

critical evidence for this parameter-setting.

These results do not in themselves disconfirm the pro-drop parameter or its role in acquisition. They do not vitiate the need to critically test the theoretical and empirical predictions made by this proposed parameter and unmarked parameter-setting. However, they do suggest that the critical empirical data which has been used to date to argue for the role of the pro-drop parameter in acquisition, (i.e. subject omission in English acquisition) may have an alternative explanation.

In general, these acquisition results appear to be in accord with current linguistic results, regarding Japanese in particular, and the pro-drop parameter in general. Although Japanese has been argued by some to be [+pro-drop],(e.g. Hasegawa, 1984), Japanese does not have verbal agreement with subjects or objects, which would license pro-drop. Thus, agreement in Japanese cannot insure recoverability of the null subject as it does in Italian. For this and other reasons, the generalizability of the 'pro drop' parameter to languages like Japanese is questionable in itself.

In addition, several recent linguistic proposals have argued that the 'pro-drop' phenomena are in fact a reflex of more basic linguistic facts, i.e., that they are themselves derivative of other parameters which are related to a language's configuration (Huang, in preparation, Safir to appear).

If these proposals are confirmed, then independent results from linguistic theory and acquisition results are now converging.

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